



Catheter-Associated Urinary Tract Infection (CAUTI) Prevention



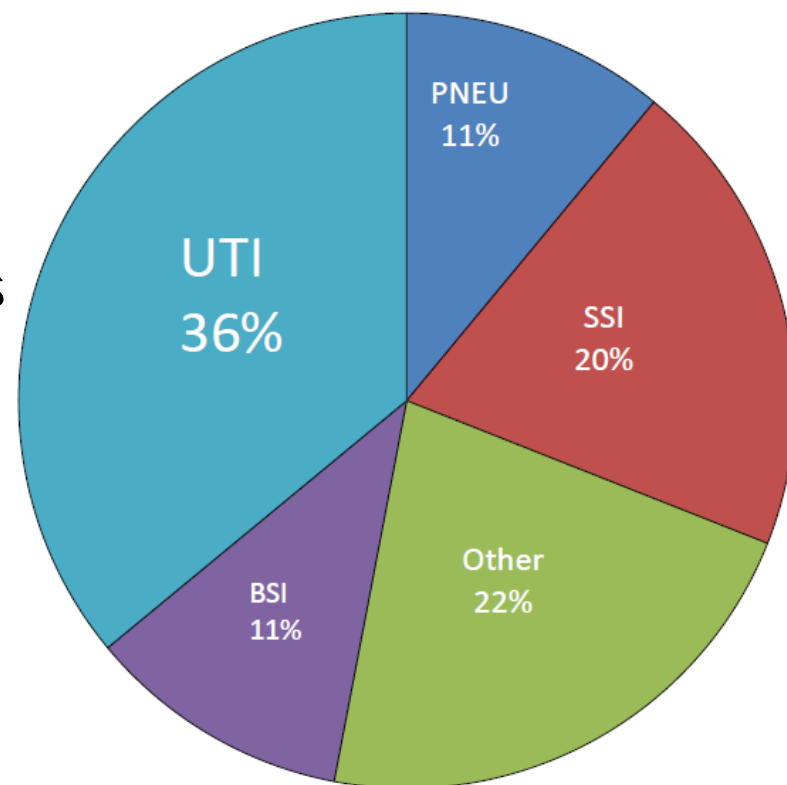
Basics of Infection Prevention
2 Day Mini-Course
October – November 2011

Objectives

- Define the scope of healthcare-associated urinary tract infections (UTI)
- Review evidence-based clinical practices shown to prevent catheter-associated urinary tract infections (CAUTI)
- Discuss strategies to reduce CAUTI within the hospital or other healthcare setting
- Review CAUTI surveillance definitions

Epidemiology of UTI

- Most common type of HAI
- Accounts for >30% of all infections reported to NHSN
- Leading cause of secondary bloodstream infection (BSI)
- 10% mortality rate (13,000 attributable deaths annually)
- Increases length of stay 2-4 days
- Results in antimicrobial overuse and antimicrobial resistance



Source: APIC Guide to the Elimination of CAUTI (2008)

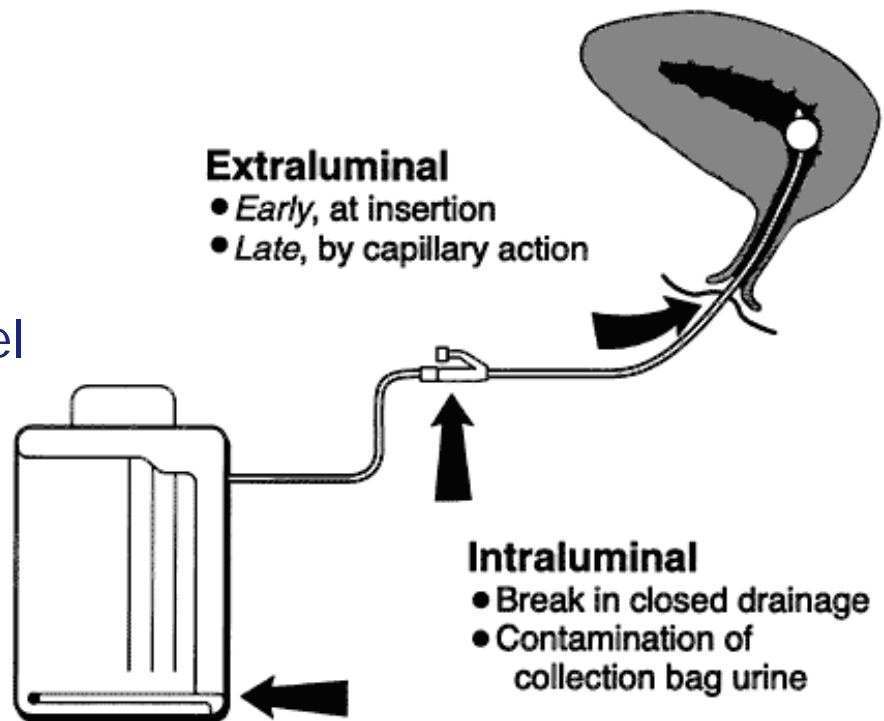
Urinary Catheter Use

- Urinary catheter prevalence:
 - Medical surgical unit 10-30%
 - ICU 60-90%
 - Nursing home 5-10%
- 40-50% catheters in hospital wards (non-ICU) do not have valid indication for use
- Physicians frequently unaware of use
 - In recent study >50% did not which patients catheterized
 - 75% did not know duration of use or discontinuation



Etiology of CAUTI

- Source
 - Patient's colonic or perineal flora
 - Bacteria on hands of personnel
- Microbes enter bladder via 2 routes
 - Extraluminal - around the external surface
 - Intraluminal - inside the catheter
- Daily risk of bacteriuria with catheterization 3% to 10%
 - By day 30, 100%



Pathogens Associated with CAUTI

- *E. coli* 26%
- Enterococci 16%
- *P. aeruginosa* 12%
- *Candida* spp 9%
- *K. pneumoniae* 6%
- *Enterobacterspp* 6%



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Historical Perspective

What we did

IP typically

- Reviewed CDC guidelines on prevention of UTI
- Educated staff, mainly nursing, on the guidelines
- Performed surveillance of UTI
- Reported findings to Infection Control and Executive Committees
- Reported our “success” to The Joint Commission

Historical Perspective - 2

And What Happened

- 600,000 patients developed hospital-acquired UTIs per year
- 80% were urinary catheter-associated
- Approximately half of the patients with a urinary catheter did not have a valid indication for placement
- Each day the urinary catheter remained, the risk of CAUTI increased 5%



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Current Perspective on HAI Prevention

- ↑ Consumer awareness of the impact of HAI
- ↑ Costs of healthcare
- ↑ Population without medical insurance
- ↑ Demand for accountability by regulatory agencies, advocacy groups, and legislative mandates
- Infection PREVENTION has become **a clear mandate**

It takes a village
(or at least a health care team)
to prevent HAI



New Tenets of Infection Prevention

IP **expected** to

- Review the evidence-based (CDC) guidelines
- Evaluate **your** facility's adoption of recommended practices
- Collect data to understand current practice
- Implement recommended practices
 - Educate staff --- ALL healthcare stakeholders
 - Change patient care practices where necessary
- Educate patients regarding infection risks and their role in prevention



New Tenets of Infection Prevention - 2

- Monitor compliance
 - Feedback observational data to all stakeholders
- Perform standardized surveillance for infections
 - Understand the current state
 - Set prevention target (% reduction goal or elimination)
 - **Monitor progress** in reducing infections
- Repeat until you get it right



CAUTI Prevention

- With currently recommended infection prevention practices, estimated up to **69%** CAUTI can be prevented

380,000 infections prevented annually
9,000 lives saved

- National CAUTI 5-year prevention goal:
25% decrease from 2009 baseline



www.cdc.gov/hicpac/cauti
www.hhs.gov/ophs/initiatives/hai/prevtargets



CDC Prevention Strategies

Core Strategies

High levels of
scientific evidence

Demonstrated
feasibility

- Should become standard practice

Supplemental Strategies

Some scientific
evidence

Variable levels of
feasibility

- Consider implementing in addition to Core when infections persist or rates are high

CAUTI Prevention Strategies - 1

Core

- Insert catheters only for appropriate indications
- Leave in place only as long as needed
- Only properly trained persons insert and maintain
- Hand hygiene
- Aseptic technique and sterile equipment for insertion
- Maintain closed drainage system and unobstructed urine flow
- Implement improvement program to achieve appropriate use of catheters

www.cdc.gov/hicpac/cauti



CAUTI Prevention Strategies - 2

Supplemental

- Alternatives to indwelling urinary catheters
- Portable ultrasound devices to assess urinary retention, reduce unnecessary catheterizations
- Antimicrobial / antiseptic impregnated catheters



www.cdc.gov/hicpac/cauti



Indications for Urinary Catheter Use

“Appropriate” use

1. Acute urinary retention or obstruction
2. Peri-operative use in selected surgeries
3. Assist healing of perineal and sacral wounds in incontinent patients
4. Hospice, comfort care, palliative care
5. Required immobilization for trauma or surgery
6. Chronic indwelling urinary catheter on admission
7. Accurate measurement of urinary output in critically ill patients (intensive care)

CAUTI Prevention Bundle (one example)

Aseptic insertion and proper maintenance

Bladder ultrasound may avoid indwelling catheter

Condom or intermittent catheterization in appropriate patients

Do not use indwelling catheter unless necessary

Early removal of catheters using reminders or stop orders

APIC CAUTI Elimination Guide <http://www.apic.org>



Not Recommended

No evidence to support an effect on UTI prevention

- Complex urinary drainage systems
- Routinely changing catheters or drainage bags
- Routine antimicrobial prophylaxis
- Cleaning the periurethral area with antiseptics
- Antimicrobial irrigation of the bladder
- Antiseptic / antimicrobial solution instillation into drainage bags
- Routine screening for asymptomatic bacteriuria

UTI Prevention Process Measures

Measure HCW compliance (select one or more)

- Hand hygiene
- Documentation of catheter insertion & removal
- Daily assessment of foley catheter
- Documentation of indications for use



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UTI Prevention Outcome Measure

- Perform UTI surveillance using standardized definitions and protocols
- Note: Bacteria isolated from urine alone does **NOT** meet surveillance definitions for UTI

Example

- If culture grows 1000–10,000 ($10^3 - 10^4$) CFU/ml, must have symptoms **and** positive urinalysis



UTI Prevention Outcome Measure - 2

- Use NHSN* surveillance definitions
 - Symptomatic UTI criteria for
 - patient with a catheter
 - patient with catheter recently removed (48 hr)
 - **NOT** catheter associated
 - in babies ≤ 1 yo
 - Asymptomatic UTI with bacteremia
 - requires positive blood culture and urine culture (100,000 CFU) with the same pathogen
- Refer to written definitions frequently when performing surveillance



*National Healthcare Safety Network, CDC



References and Resources

- Gould CV, Umscheid CA, Agarwal RK, Kuntz G, Pegues DA, and HICPAC. Guideline for Prevention of Catheter associated Urinary Tract Infections
2009.http://www.cdc.gov/hicpac/cauti/001_cauti.html
- IHI Program to Prevent CAUTI <http://www.ihp.org/>
- APIC CAUTI Elimination Guide <http://www.apic.org/>
- IDSA Guidelines (Clin Infect Dis 2010;50:625-63)
- SHEA/IDSA Compendium (ICHE 2008;29:S41-S50)
- National Quality Forum (NQF) Safe Practices for Better
- Healthcare – Update April 2010 . CDC/Medscape collaboration
<http://www.cdc.gov/hicpac/>





Questions?

For more information, please contact any
HAI Liaison Team member

Thank you

